BEFORE THE BOARD OF ENVIRONMENTAL REVIEW AND
THE DEPARTMENT OF ENVIRONMENTAL QUALITY
OF THE STATE OF MONTANA

In the matter of the amendment of ARM 17.24.645, 17.24.646, 17.30.502, 17.30.619, 17.30.702, 17.30.1001, 17.36.345, 17.55.109, 17.56.507, and 17.56.608, pertaining to ground water standards incorporated by reference into Department Circular DEQ-7	NOTICE OF AMENDMENT (RECLAMATION) (WATER QUALITY) (SUBDIVISIONS) (CECRA) (UNDERGROUND STORAGE TANKS)

TO: All Concerned Persons

1. On December 21, 2018, the Board of Environmental Review and Department of Environmental Quality published MAR Notice No. 17-403 regarding the public hearing on the proposed amendment of the above-stated rules at page 2446 of the 2018 Montana Administrative Register, Issue No. 24. On February 22, 2019, the board and department published MAR Notice No. 17-403 regarding an additional public hearing and extension of comment period at page 196 of the 2019 Montana Administrative Register, Issue No. 4.

2. The board has amended ARM 17.24.645, 17.24.646, 17.30.502, 17.30.619, 17.30.702, and 17.30.1001 exactly as proposed. The department has amended ARM 17.36.345, 17.55.109, 17.56.507, and 17.56.608 exactly as proposed.

In addition, the board has revised the ground water standards in Department Circular DEQ-7 for diallate; dioxane, 1,4-; perfluorooctane sulfonate (PFOS); and perfluorooctanoic acid (PFOA) as proposed. The board has determined it will not proceed with the proposed revisions to ground water standards in Department Circular DEQ-7 for iron and manganese at this time.

3. The following comments were received and appear with the department's responses:

COMMENT NO. 1: We request an extension of the public comment period beyond the initial 45-day period which started on December 21, 2018.

RESPONSE: The department requested the extension from the Board of Environmental Review on February 8, 2019, and it was granted. The extended public comment period for both the department and board rules continued to 5:00 p.m. on March 25, 2019.

COMMENT NO. 2: We support the board's and department's proposed adoption of ground water standards for diallate; dioxane, 1,4-; iron; manganese; perfluorooctane sulfonate (PFOS); and perfluorooctanoic acid (PFOA).

RESPONSE: Thank you for the comment. See response to Comment No. 3.

COMMENT NO. 3: We support the department's recommendation that the rulemaking not proceed with the proposed ground water standards for iron and manganese, but instead proceed only with: diallate; dioxane, 1,4-; perfluorooctane sulfonate (PFOS); and perfluorooctanoic acid (PFOA).

RESPONSE: The board appreciates the department's recommendation, and the additional parties that requested Department Circular DEQ-7 to be revised without the proposed iron and manganese ground water standards. The department made this recommendation at the second public hearing on the proposed amendment of the rules on March 19, 2019. An important characteristic of diallate; dioxane, 1,4-; PFOS; and PFOA is that they are all manmade compounds and their natural background concentrations are zero. Iron and manganese, in contrast, are naturally occurring and in many locations natural background concentrations can equal or exceed the proposed criteria. Multiple department programs implement ground water standards, and the department is working to synchronize their methods, especially in relation to characterization of natural background. It is best this work be completed before, instead of after, the adoption of the iron and manganese criteria. As a result, the board and department are not proceeding with the proposed ground water standards for manganese and iron at this time. The board asks the department to continue working with the programs that implement Department Circular DEQ-7 to understand the details of how iron and manganese standards would apply in permitting and remediation decisions and to return to the board with this information.

COMMENT NO. 4: All of the proposed ground water standards are another unneeded and unjustified burden and huge expense for businesses who will have to test for them.

RESPONSE: The board and department do not agree with the comment. The board and department propose water quality standards that will protect public health and the environment. The requirement to test for specific water quality standards varies widely; it is not an automatic requirement for all businesses who discharge to state waters. The necessity for the ground water standards is explained in MAR Notice No. 17-403, starting at page 2446 of the 2018 Montana Administrative Register, Issue No. 24.

COMMENT NO. 5: The statements of reason should be clear that EPA's lifetime health advisory was not intended to be applied to ground water; it is a drinking water health advisory. The lifetime health advisory for PFOS and PFOA are non-enforceable and non-regulatory per EPA's 2016 memo "*Clarification about the Appropriate Application of the PFOA and PFOS Drinking Water Health Advisories."*

RESPONSE: The board and department do not agree with the comment. The referenced EPA memo addresses whether EPA's PFOA and PFOS health advisory can be used to manage risk related to exposure to these compounds through ingestion via food sources. It clarifies that, for PFOA and PFOS, EPA's lifetime health advisories (those used for the proposed rule) only apply to exposure involving drinking water. This is precisely the scenario the proposed rule addresses:

exposure to PFOA and PFOS in ground water, where drinking is a beneficial use. There is no assumption of exposure via food consumption included in the criteria.

COMMENT NO. 6: The new standards are more stringent than the drinking water standards currently in place. It does not make sense that the department would promulgate cleanup standards more stringent than drinking water standards.

RESPONSE: The board does not agree with the comment. There are currently no drinking water standards for any of the proposed criteria. See responses to Comment Nos. 3 and 7.

COMMENT NO. 7: The rulemaking proposal for iron and manganese is a significant departure from how EPA and other states approach iron and manganese regulation in ground water—no other state appears to have ground water standards at the levels proposed by the department.

RESPONSE: The department is charged with collecting and furnishing information related to the prevention and control of water pollution (75-5-212, MCA), and the board is responsible for formulating and adopting standards of water quality (75-5-301, MCA) which will protect the public health and the state's ground water resources. The consideration of the proposed iron and manganese standards falls clearly within these authorities. However, please see response to Comment No. 3.

COMMENT NO. 8: We appreciate the proactive efforts the department is taking to update water quality standards.

RESPONSE: Thank you for the comment. See response to Comment No. 3.

COMMENT NO. 9: The need for the iron and manganese criteria is unclear since EPA currently has regional screening levels (RSLs) for drinking water for them that could be relied on by the department to guide remedial activities.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standards for manganese and iron at this time. See response to Comment No. 3.

COMMENT NO. 10: The department's proposal is significantly more stringent than the regional screening levels (RSLs).

RESPONSE: RSLs are calculated using CERCLA risk assessment guidance and are intended to be used as a concentration that would generally indicate if a chemical should be further considered at a superfund site. Department Circular DEQ-7 ground water standards are established under the authority of the state of Montana as provided for in 75-5-301(1), MCA, and are intended to protect beneficial uses. RSLs are a default calculation that account for exposures directly related to a specific site and evaluate dermal, inhalation, and ingestion pathways directly. Department Circular DEQ-7 ground water standards consider direct ingestion and use a relative source contribution to account for other exposure pathways. As noted elsewhere in the response to comments, the department has the delegated authority to establish state water quality standards more stringent than the federal water quality criteria.

COMMENT NO. 11: We question the appropriateness of enacting state-wide water quality standards to address what the department has described as concerns connected to drinking water.

RESPONSE: The board does not agree with the comment. The board's responsibility is to adopt scientifically supported water quality standards to protect beneficial uses. In the case of this rulemaking, ground water standards are proposed to protect "public and private water supplies" (ARM 17.30.1006(1)(a)(i) and (2)(a)(i)). Scientific literature in the recent past has demonstrated, to our satisfaction, that the parameters included in this rulemaking may pose an unacceptable level of harm at certain concentrations to "public and private water supplies" and as such deserve consideration for a ground water quality standard.

COMMENT NO. 12: Given the availability of regional screening values to guide remediation, lack of potability when manganese concentrations exceed 50 µg/L, and the upcoming availability of pharmacokinetic models which will reduce uncertainty in high-dose to low-dose extrapolations, it is not advisable for DEQ to propose a health-based manganese criterion at this time.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standard for manganese at this time. See response to Comment No. 3.

COMMENT NO. 13: The showing required under 75-5-203, MCA, has not been met for manganese.

RESPONSE: The proposed criterion for manganese is more stringent than comparable federal guidelines. As a result, to adopt the proposed criterion, the board would need to make written stringency findings from the hearing record as specified at 75-5-203, MCA. The required findings include a consideration of the costs to the regulated community that are directly attributable to the proposed manganese criterion. The hearing record does not contain the required cost information and therefore the board cannot make the required stringency findings under 75-5-203, MCA. For this reason, the board agrees with the commenter that the showing required under 75-5-302, MCA, has not been met. The board and department are not proceeding with the proposed ground water standard for manganese at this time. See response to Comment No. 3.

COMMENT NO. 14: Section 75-5-301(2)(a), MCA, states that if a chemical exceeds the federal standards set forth in 40 CFR 141, the federal standard must be adopted. We believe that the adoption of the iron standard would violate this statute.

RESPONSE: The commenter misinterprets the statute. The cited statute, 75-5-301(2)(a), MCA, only applies to arsenic and other carcinogens and prescribes how standards are established at certain risk levels. Iron is not listed as a carcinogen in Department Circular DEQ-7 and the cited statute is, therefore, inapplicable. The board and department are not proceeding with the proposed ground water standards for iron at this time. See response to Comment No. 3.

COMMENT NO. 15: The inclusion of PFOS and PFOA at the proposed levels, for the purpose of establishing clean-up standards for hazardous waste

permitted facilities, exceeds the department's statutory authority to regulate ground water under the underground storage tanks statutes.

RESPONSE: The department is charged with adopting rules concerning underground storage tanks and related cleanup activities (75-11-505, MCA, and 75-11-319, MCA). The board is responsible for formulating and adopting standards of water quality (75-5-301, MCA) which will protect the public health and the state's ground water resources. The consideration and adoption of the proposed PFOS and PFOA ground water standards falls clearly within these authorities. These standards are state water quality standards that programs at the department use for the protection of human health and the environment, including the Hazardous Waste Program and the Underground Storage Tank Program. See response to Comment No. 18.

COMMENT NO. 16: The inclusion of PFOS and PFOA at the proposed levels, for the purpose of establishing cleanup standards for hazardous waste permitted facilities, is inappropriate, because the department is using the EPA's lifetime health advisory despite the EPA's recommendation against states using lifetime health advisories as a cleanup standard.

RESPONSE: DEQ agrees that the EPA Health Advisories should not be used directly as cleanup standards, and is not doing so; DEQ does, however, use the equations and assumptions found in the EPA Health Advisories in calculating its own DEQ-7 standards that are protective of human health. Once approved, these standards are incorporated into DEQ-7 and have the force of law. Additionally, see response to Comment No. 15.

COMMENT NO. 17: The inclusion of PFOS and PFOA at the proposed levels for the purpose of establishing cleanup standards for hazardous waste permitted facilities is inappropriate. It is inappropriate to apply the new rule to site cleanups already governed by CERCLA or RCRA where cleanup is based on a site-specific human health risk assessment process.

RESPONSE: Site-specific human health risk-based cleanup levels are used when enforceable, promulgated standards such as those in Department Circular DEQ-7 are not available. Pursuant to CERCLA, the selected remedy must meet the threshold criteria of protectiveness and meet Applicable or Relevant and Appropriate Requirements (ARARs) unless a waiver is justified. 40 CFR 300.430. Department Circular DEQ-7 standards are a state ARAR that must be met. Likewise, for facilities regulated under the Montana Hazardous Waste Act, risk-based numbers are not used where enforceable, promulgated standards such as those in Department Circular DEQ-7 exist.

COMMENT NO. 18: The statutes cited as the department's authority to implement the proposed ground water standards (75-11-319, 75-11-505, and 75-11-309, MCA) have no readily apparent nexus to the establishment of new cleanup standards for hazardous waste permitted facilities based on ground water criteria.

RESPONSE: The commenter noted that the department cited 75-11-319, 75-11-505, and 75-11-309, MCA. Referencing 75-11-319, 75-11-505, and 75-11-309, MCA, was necessary so the department could adopt the current version of

Department Circular DEQ-7 by reference into necessary rules, including ARM 17.56.507 and ARM 17.56.608. The new water quality standards are used by multiple programs. Regardless of the regulatory authority that a party may fall under, it is a violation to cause pollution of any state waters (which includes ground water) or place or cause to be placed any waste where they will cause pollution of state waters. See 75-5-605, MCA. The board has separate authority, under 75-5-301, MCA, to adopt standards of water quality.

COMMENT NO. 19: The proposed ground water criteria for Department Circular DEQ-7 should not apply where other federal and Department of Defense (DOD) environmental requirements govern.

RESPONSE: The state of Montana has primacy in regulating ground water as a state resource. The Montana Water Quality Act, 75-5-605, MCA, provides that it is unlawful to cause pollution of any state waters or place or cause to be placed any wastes where they will cause pollution of any state waters. Specifically, ARM 17.30.1006 classifies ground water into Classes I through IV based upon its specific conductance and establishes the ground water quality standards applicable with respect to each ground water classification. The quality of a class of ground water must be maintained so that it is suitable for established uses. Concentrations of substances in ground water within these classes may not exceed the human health standards for ground water listed in Department Circular DEQ-7, Montana Numeric Water Quality Standards. The DOD must not only comply with federal environmental laws regarding ground water but state requirements such as Department Circular DEQ-7 standards, also where those state requirements are more stringent. See also response to Comment No. 15.

COMMENT NO. 20: The PFOS and PFOA compounds are not identified in 40 CFR Part 261 as either characteristic hazardous wastes or listed hazardous wastes or toxic constituents, and no CERCLA/IRIS (risk-based) standard for the PFOA/PFOS compounds have been promulgated; therefore, adopting them in Department Circular DEQ-7 cannot expand the state's jurisdiction under RCRA as applied to the Department of Defense.

RESPONSE: The rulemaking at issue concerns Department Circular DEQ-7 and the state's authority to regulate pollution of ground water. All facilities regulated under the Montana Hazardous Waste Act must also comply with the Montana Water Quality Act, including compliance with the specific state standards for ground water set forth in Department Circular DEQ-7.

COMMENT NO. 21: DEQ has not provided sufficient evidence that iron and manganese constitute harm to the public health.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standards for manganese and iron at this time. See response to Comment No. 3.

COMMENT NO. 22: The proposed rulemaking contains no data regarding the economic impact of the proposal, including that required under 75-5-301(2), MCA. We would like some information on that.

RESPONSE: The board and department are not proceeding with the proposed ground water standards for iron and manganese at this time. The department is continuing to work on clarifying and synchronizing its approach to implementing iron and manganese standards, especially for situations where there may be a large natural background component. When this work is completed, the economics of waste treatment and prevention will be considered for these parameters. Regarding diallate; dioxane, 1,4-; PFOS; and PFOA, the proposed ground water standards for these will be primarily (if not exclusively) used by the department's Waste Management and Remediation Division as cleanup endpoints. Remediation sites are assessed on a case-by-case basis and financially responsible or liable parties are required to remediate contaminated sites to a level that assures protection of human health, safety, and welfare of the environment. These four ground water standards will primarily be addressed through remediation and not through the permitting activities contemplated under Title 75, chapter 5, MCA. No significant economic impacts are anticipated under the Montana ground water pollution control system permitting program as a result of the adoption of the proposed ground water standards for diallate; dioxane, 1,4-; PFOS; or PFOA. Please see response to Comment No. 3.

COMMENT NO. 23: What effect will the proposed standards have on ground water classification?

RESPONSE: The board is not revising Department Circular DEQ-7 to include ground water standards for iron and manganese at this time. The adoption of the proposed ground water standards for diallate; dioxane, 1,4-; PFOS; and PFOA, will have no impact on the ground water classes. Montana's ground water classes are described in ARM 17.30.1005 and 1006. The ground water classes and their associated beneficial uses are based on specific conductance, a measure of how salty the ground water is. Discharge compliance with the proposed standards, or for that matter, with any of the ground water standards already adopted in Department Circular DEQ-7, is a separate compliance consideration made on a parameter-by-parameter, case-by-case basis.

COMMENT NO. 24: How do the proposed standards coincide with the board’s authority to adopt rules under Public Water Supplies at 75-6-103(2)(a), MCA?

RESPONSE: The board has separate authority for (a) adopting rules pertaining to surface and ground water standards, and (b) adopting rules pertaining to maximum contamination levels for public water supplies. The proposed rulemaking fell under the board's authority at 75-5-301(2)(a), MCA, for surface and ground water standards. The department is currently working on manganese standards applicable to public water supplies; when proposed, those would be addressed by the board under its authority at 75-6-103(2)(a), MCA.

COMMENT NO. 25: The department's proposed 100 microgram per liter ground water standard for manganese is important for the protection of public health.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standards

for manganese and iron at this time. See response to Comment No. 3.

COMMENT NO. 26: The iron criterion proposed by the department is based on a reference dose (RfD; 0.59 mg/kg-day) modified from the RfD of 0.7 mg/kg-day derived by EPA in their 2016 PPRTV document. The department modified the RfD for a body weight of 80 kg, whereas EPA's RfD was developed using an assumed body weight of 70 kg. EPA does not recommend using alternate body weights to modify RfDs in this manner.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standard for iron at this time. See response to Comment No. 3.

COMMENT NO. 27: The 1,000-fold uncertainty factor applied to rodent data for the derivation of the department manganese RfD shows that the level of confidence in this value—in terms of applicability to human infants—is very low.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standards for manganese at this time. See response to Comment No. 3.

COMMENT NO. 28: DEQ applies an uncertainty factor of 10 to address variability within the human population in the development of the manganese criterion, but this is unnecessary because DEQ already relied on a RfD based on the most sensitive portion of the population—developing fetuses and infants.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standard for manganese at this time. See response to Comment No. 3.

COMMENT NO. 29: DEQ should not use the EPA PPRTV (2016) reference dose (RfD) because it assumes a high concentration one-time ingestion and is not relevant to the typical environmental iron ingestion, which is spread out over time.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standard for iron at this time. See response to Comment No. 3.

COMMENT NO. 30: The iron criterion does not consider that iron is an essential requirement in the human diet; DEQ's use of the relative source contribution for drinking water of 0.2 is overly conservative considering the typical daily iron intake is 11 mg/day.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standard for iron at this time. See response to Comment No. 3.

COMMENT NO. 31: The proposed cumulative standard cleanup level for PFOA and PFOS is not consistent with acceptable toxicological practices per EPA's *Supplementary Guidance for Conducting Health Risk Assessment of Chemical Mixtures*, August 2000.

RESPONSE: PFOA and PFOS are two compounds falling within a larger

group called Per- and Polyfluoroalkyl substances, or "PFAS." Other compounds in the PFAS group are PFHxS and PFNA. Among the compounds of the PFAS group, EPA found that PFOA and PFOS were detected at concentrations greater than the proposed criterion (0.07 µg/L) in 1.3 percent of all U.S. public water supplies serving 10,000 people or fewer. For this reason, EPA has focused on PFOA and PFOS criteria for drinking water. EPA's 2016 Health Advisory for lifetime exposure is for individual and combined PFOA and PFOS concentrations, consistent with how the board proposed the rule.

COMMENT NO. 32: The rationale in MAR Notice No. 17-403 fails to explain why both manganese and iron are proposed to be classified as toxins.

RESPONSE: The board agrees that the notice could have better explained the toxic effects of these elements, primarily those of iron. The board and department are not proceeding with the proposed ground water standards for manganese and iron at this time. See response to Comment No. 3.

COMMENT NO. 33: The Agency for Toxic Substances and Disease Registry indicates there is little difference in sensitivity between rats and humans, so DEQ's calculations likely overestimate the risk of manganese by assuming humans are more sensitive.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standard for manganese at this time. See response to Comment No. 3.

COMMENT NO. 34: Manganese, iron, zinc, and calcium all interact to reduce their respective absorption and toxicity; therefore the bioavailability of manganese in ground water will likely be less than assumed in the department's calculations and the studies they relied on.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standards for manganese and iron at this time. See response to Comment No. 3.

COMMENT NO. 35: Personal communication between EPA Region VIII's toxicologist offering a professional opinion as to the scientific quality of the recent manganese studies is insufficiently rigorous to cause DEQ to modify its manganese drinking water criterion to be more stringent then the federal equivalent.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standard for manganese at this time. See response to Comment No. 3. However, it should be noted that consultation with EPA Region VIII's Human Health Risk Assessor is provided for in state law for cases where the department derives toxic human health criteria (see pages 5 to 7, Department Circular DEQ-7, May 2017 edition).

COMMENT NO. 36: It is unclear where the values for the average body weight and water ingestion for infants zero to <6 months came from in the development of the manganese criterion.

RESPONSE: The board and the department appreciate the comment. The

board and department are not proceeding with the proposed ground water standard for manganese at this time. See response to Comment No. 3.

COMMENT NO. 37: In the development of the manganese criterion, why was the water consumption variable from Table 3-15 of EPA's Exposure Factors Handbook selected rather than that from a newer study (NHANES 2003-2006)?

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standard for manganese at this time. See response to Comment No. 3.

COMMENT NO. 38: Abundance of iron and manganese naturally available in soils, combined with their solubility, make regulation and compliance difficult, if not impossible. Even if background levels are considered, it places an undue burden of proof on dischargers and industry to demonstrate background levels.

RESPONSE: The board and the department appreciate the comment. The board and department are not proceeding with the proposed ground water standards for manganese and iron at this time. See response to Comment No. 3.

Reviewed by:

/s/ Edward Hayes
EDWARD HAYES
Rule Reviewer

BOARD OF ENVIRONMENTAL REVIEW

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BY: */s/ Shaun McGrath*
SHAUN McGRATH
Director

Certified to the Secretary of State, June 11, 2019.